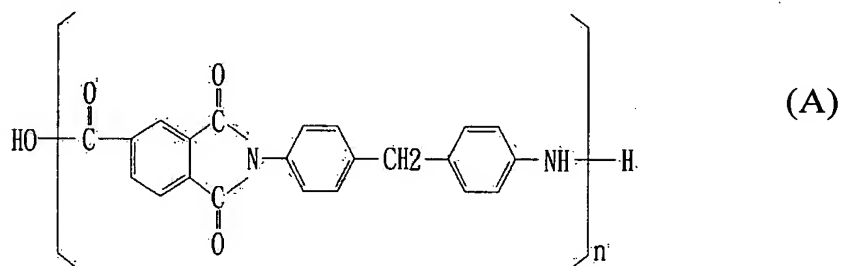


What is claimed is:

1. A high thermal conductive halogen-free phosphorus-free retardant resin composition comprising:

- 5 (1) an epoxy resin, having bifunctional and polyfunctional groups, in an amount of 10 to 50% by weight of the total composition;
- (2) a retardant, having functional structure of amide, imide and hydroxy groups, in an amount of 10 to 30% by weight of the total composition, and having a chemical structure as (A):

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wherein n is a positive integer;

- (3) an inorganic salt, in an amount of 10 to 50% by weight of the total composition; and
- 20 (4) a high thermal conductive metal powder, in an amount of 10 to 30% by weight of the total composition.

2. The high thermal conductive halogen-free phosphorus-free retardant resin composition as claimed in claim 1, wherein said epoxy resin has an epoxide equivalent of 150 to 1000.

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3. The high thermal conductive halogen-free phosphorus-free retardant resin composition as claimed in claim 1, wherein said epoxy resin is selected depending on the application function from the group consisting of resins of diglycidyl ether type, resins of cresol novolac type, bisphenol A type resin (BPA) for improving the flow property of the resin, styrene-maleic-anhydride resin (SMA) exhibiting high reliability and low hygroscopicity and heat resistance, and functional resin of poly-phenylene ether (PPE) capable of providing low dielectric constant.
4. The high thermal conductive halogen-free phosphorus-free retardant resin composition as claimed in claim 1, wherein said inorganic powder is selected from the group consisting of silicon dioxide, titanium dioxide, alumina, aluminum hydroxide, magnesium hydroxide, calcium carbonate and mixtures thereof having an average particle size between 0.01 micron and 5 micron.
5. The high thermal conductive halogen-free phosphorus-free retardant resin composition as claimed in claim 1, wherein said high thermal conductive powder is selected from the group consisting of aluminum nitride, boron nitride, aluminum oxide, silver, aluminum, zinc oxide, carbon nano tube (CNT) and mixture thereof having a average particle size is between 0.01 micron and 10 micron.